

# North Coast Semaphore Grass (*Pleuropogon hooverianus*) A Rare and Threatened North Coast Range Grass

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The distinctive flag-like inflorescences of North Coast semaphore grass

Photo: Clare Golec

The North Coast semaphore grass (*Pleuropogon hooverianus* [L. Benson] J.T. Howell) is a rare and threatened grass of the North Coast Ranges in California, listed by the state of California and the California Native Plant Society (CNPS). A beautiful, rhizomatous, and tussock-forming perennial grass of woodland and forest meadows, North Coast semaphore grass displays a tall, distinctive, flag-like inflorescence that signals from afar its presence in early spring.

This spectacular grass is known from less than ten geographically isolated and

privately owned sites (UC Berkeley, 2009); without protection and management efforts, it is likely to become endangered throughout its range (California Department of Fish and Game 2005).

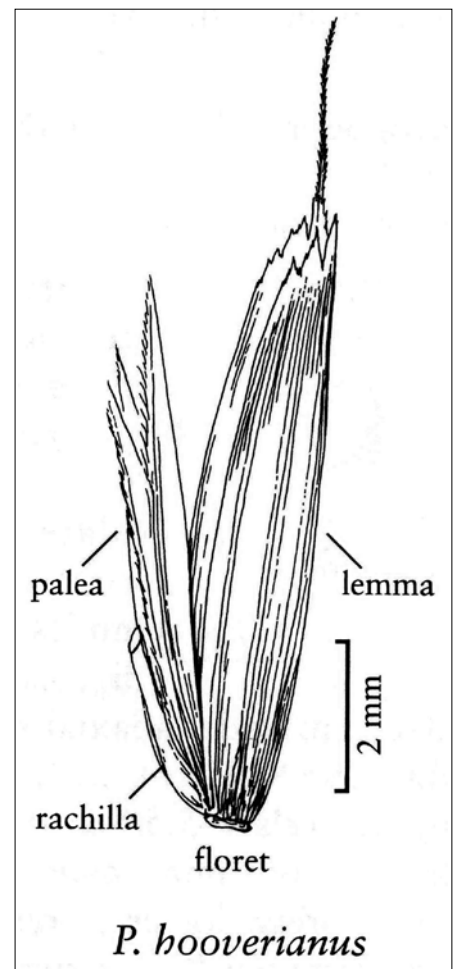
North Coast semaphore grass belongs to the hydrophilous (“water-loving”) genus *Pleuropogon* (from the Greek *pleura*, “side” and *pogon*, “beard”) in reference to the awns on the sides of the palea in some species. *Pleuropogon* is a small genus with only five species worldwide, one circumboreal and the other four restricted

to the Pacific coast, from southern British Columbia to central California (Natural Resources Conservation Service 2009). These five species are listed below, and many are rare to uncommon.

- False semaphore grass or pleuropogon de Sabine (*P. sabinei*) is a perennial with a range that extends from eastern Siberia to northern Alaska, Canada, and Greenland.
- Oregon semaphore grass (*P. oregonus*) is a perennial historically known from only a few occurrences in Union and Lake counties in Oregon. It was consid-

ered extinct until rediscovery in 1975 in Lake County. The species is listed as threatened by the state of Oregon.

- Nodding semaphore grass (*P. refractus*) is a perennial ranging from British Columbia south to northern California. *P. refractus* is uncommon throughout its range (CNPS List 4.2).
- California semaphore grass (*P. californicus*) is an annual California endemic (restricted) species with two varieties.



*P. hooverianus*

*Pleuropogon hooverianus* floret  
Illustration: Flora of North America, Vol. 24

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- Var. *californicus* (California semaphore grass) ranges from southern Humboldt County south to San Luis Obispo County, and east to Amador County in California.
- Var. *davyi* (Davy's semaphore grass) occurs in Mendocino and Lake Counties in California. This uncommon subspecies has a more restricted range (CNPS List 4.3).
- North Coast semaphore grass (*P. hooverianus*) occurs rarely in Marin, Mendocino, and Sonoma Counties in California. The species is listed as threatened by the state of California and CNPS. *Pleuropogon* in California is believed to have originated in Mendocino County, as four of these taxa (*P. hooverianus*, *P. californicus*, *P. californicus* var. *davyi*, *P. refractus*) occur in that county (But 1977).

### Conservation Status

North Coast semaphore grass has only twenty known occurrences (California Natural Diversity Database 2009). Of these twenty occurrences, seven are historical (older than 20 years), thirteen are recent, one is extirpated, and six are potentially extirpated.

This species was originally listed by the State of California as Rare in November 1979 under the Native Plant Protection Act (NPPA), and subsequently was uplisted in December 2002 to Threatened under the California Endangered Species Act (CESA), which affords greater protections.

North Coast semaphore grass is a CNPS list 1B.1 species (plants rare, threatened, or endangered in California, and elsewhere, with over 80 percent of occurrences threatened with high degree and immediacy of threat).

This species is also globally rare and listed by California Native Diversity Database as a G1 (extremely endangered, less than six occurrences, or less than 1,000 individuals, or less than 2,000 acres).

Potential threats to North Coast semaphore grass are forest encroachment;

### *Pleuropogon hooverianus* (L. Benson) J.T. Howell

**CALIFORNIA NATIVE PLANT SOCIETY RARE PLANT INVENTORY: LIST 1B: RARE, THREATENED, OR ENDANGERED IN CALIFORNIA AND ELSEWHERE**

**STATE LISTING: THREATENED, 2002**

**FEDERAL LISTING: NONE**

habitat conversion such as vineyards and construction; land management activities such as forestry, road building, and maintenance (i.e., roadside clearing, mowing, and herbicide spraying); hydrological alteration; climate change; and invasive plant competition.

### Habitat

The habitat of North Coast semaphore grass is often cited as marshy areas in redwood forest (Hickman 1993), which overlooks key habitat for this species. A more comprehensive habitat description

would be wet to seasonally wet openings and meadows, often with north aspects in redwood forest, Douglas-fir forest, and oak woodlands (such as benches, swales, and streambanks) of the North Coast Ranges.

Native plants associated with North Coast semaphore grass include sedges (*Carex* spp.) and rushes (*Juncus* spp.), blue wildrye (*Elymus glaucus*), California brome (*Bromus carinatus*), California oatgrass (*Danthonia californica*), western manna grass (*Glyceria occidentalis*), cow parsnip (*Heracleum lanatum*), Douglas' meadowfoam (*Limnanthes douglasii* spp.



**Chuck Williams amidst North Coast semaphore grass on the north facing slopes of Ackerman Creek watershed west of Ukiah in Mendocino County**

*Photo: Clare Golec*

*nivea*), melic grasses (*Melica* spp.), pink plectritis (*Plectritis brachystemon*), wild rose (*Rosa californica*), black raspberry (*Rubus leucodermis*), California blackberry (*Rubus ursinus*), and hedge nettle (*Stachys ajugoides* var. *rigida*).

Invasive non-native plants that aggressively compete for North Coast semaphore grass habitat are Italian ryegrass (*Lolium multiflorum*), pennyroyal (*Mentha pulegium*), Harding grass (*Phalaris aquatic*), and Himalayan blackberry (*Rubus armeniacus*).

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The associated species listed were compiled from occurrence data and personal field observations in Mendocino County.

**Description**

North Coast semaphore grass is quite distinctive in the field when blooming (April through June) with its more than 1-meter tall flowering stalks and large flag-like inflorescences. In addition, the species has distinctive vegetative characteristics, such as purplish basal leaf sheaths evident prior to blooming, and readily shattering (disarticulating) florets that leave behind flags of papery glumes just after blooming. Toward the end of its growing season (June), the grass has a distinctive golden color and lodged (laid down) habit. However, after June this summer-dormant perennial grass is no longer apparent above ground.

The overlapping of range and habitat of North Coast semaphore grass and Davy’s semaphore grass can necessitate distinguishing between the two species. Chuck Williams (undated), a long time champion and local expert of semaphore grasses in Mendocino County, finds the following distinguishing characteristics to be consistent in distinguishing between species:

- North Coast semaphore grass awns are longer at the bottom of the spikelet and shorter at the spikelet’s tip, and vice versa on Davy’s semaphore grass (some years awns can be present). His handy crutch to remember this feature is *P. hooverianus*, like Hoover Dam, is wider at the base and narrower at the top.
- The basal leaf sheaths at the base of the stem of North Coast semaphore grass are magenta (especially when young), whereas both Davy’s semaphore grass and California semaphore grass are cream to yellowish-green at the base.

Nodding semaphore grass also has purplish basal leaf sheaths but differs from the two species above by its much longer awns and reflexed (vs. ascending) spikelets.

Davy’s semaphore grass differs from

nodding and North Coast semaphore grass in not being rhizomatous (bearing rhizomes).

**Potential Conservation Actions**

The geographically disjunct and limited number of North Coast semaphore grass occurrences, all on privately owned property, create a high degree of threat and vulnerability to extirpation for this native grass. It is crucial to encourage and develop formalized conservation agreements and strategies that include beneficial management activities with landowners.

Beneficial activities could include control of invasive plants, removal of encroaching vegetation in meadows and forest openings where the North Coast semaphore grass grows, prescriptive grazing to remove thatch and reduce competition from non-native grasses, focused surveys of potential habitat for additional populations, further research of life history and ecological requirements, analysis of genotypes across the occurrences, monitoring and maintenance of existing populations, long-term storage of seeds from all populations in a seed germplasm bank, and educating landowners of the significance and potential value of this grass (Showers 2002).

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*Pleuropogon hooverianus* culm  
Illustration: *Flora of North America*, Vol. 24